Methods: An effort to increase BB utilization was implemented in 2003 at 11 centers participating in the Vascular Study Group of New England (VS GNE). A 90% target was set and feedback given at bi-annual meetings. BB usage (< 1-mo preoperative (P) vs chronic (C)) and POMI rates were prospectively collected among patients undergoing open AAA repair (n = 926) and lower extremity bypass (n = 2123) from 2003 through 2008. Predictors of POMI were determined using multivariate logistic regression. Rates of BB utilization and POMI were analyzed over time across strata of patient risk based on a multivariate model.

Results: Overall BB utilization was 86% (AAA 90%, LEB 84%, $p < 0.001$), and in-hospital POMI occurred in 5.5% of patients (AAA 7.6%, LEB 4.6%, $p < 0.001$). P-BB usage increased in low risk and C- BB usage increased in medium/high risk pts, but POMI rates did not change over time (table). Age >70 (OR 2.1), positive stress test (OR 2.2), CHF (OR 1.7), C-BB (OR 1.7), resting heart rate (HR) < 70 (OR 1.8) and diabetes (OR 1.6) were independent predictors of POMI. Resting HR was 67, 70, 70 for patients on C-BB, P-BB and no BB.

Conclusions: Despite regional improvement in BB usage, POMI rate did not decrease, perhaps due to P-BB doses that did not change HR. A negative impact of C-BB on POMI was unexpected and requires further investigation.

	Utilization						Post-Op MI Rate					
	Chronic - C			Preop - P (< 1 month)			Chronic - C			Preop - P (< 1 month)		
Pt. Risk Category	2003-05	2006-08	p	2003-05	2006-08	p	2003-05	2006-08	p	2003-05	2006-08	p
Low (n=539)	49%	53%	0.18	28%	36%	0.01	2.5%	2.3%	0.89	1.8%	0.7%	0.42
Medium (n=1,758)	56%	62%	0.01	28%	30%	0.45	5.6%	4.7%	0.56	4.6%	2.5%	0.23
High (n=751)	60%	70%	0.00	19%	24%	0.09	12.2%	15.1%	0.34	7.3%	6.2%	0.77

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SS35.

Peripherally Inserted Central Catheter (PICC) Usage Patterns and Associated Upper Extremity Venous Thrombosis

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Objectives: PICC line placement may be complicated by superficial (SVT) or deep vein thrombosis (DVT). The purpose of this study was to determine if any PICC line characteristics were associated with venous thrombotic complications.

Methods: All upper extremity venous duplex scans over a 12-month period were reviewed, selecting patients with isolated SVT or DVT, and recently placed PICC lines (< 30 days). Patient characteristics, PICC insertion sites, and technical specifications were evaluated. Over the same period, PICC usage patterns were determined from an electronic medical record query.

Results: Over the 12-month period, 690 patients underwent upper extremity venous duplex scans, revealing 219 isolated SVTs and 154 DVTs. Concurrently, 685 PICC line procedures were reviewed (74% basilic, 16% brachial vein, 10% cephalic). 44 of 219 (20%) isolated SVTs were associated with a PICC line (32% cephalic, 68% basilic). 54 of 154 DVTs (35%) were associated with a PICC line. Basilic vein PICCs accounted for 45 DVTs (83%) and brachial vein PICCs for 9 (7.5%), but there were no DVTs associated with cephalic vein PICC lines. ($p = 0.03$)

Conclusions: PICC lines placed in the cephalic vein are associated with isolated SVT, while those placed in the basilic vein are more frequently associated with SVT and DVT. The cephalic vein should be preferentially utilized for PICC line placement to minimize the risk for iatrogenic DVT formation.

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S7: James M. Seeger Education Session

SS36.

Vascular Surgery Board Analysis of the Surgical Operative Experience of Trainees and Practicing Vascular Surgeons

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Objectives: We aimed to find out whether the scope and complexity of current vascular surgery training reflect contemporary vascular surgery practice.

Methods: We analyzed the operative logs submitted to the VS B-ABS by recent vascular surgery residents applying for the qualifying exam (QE) (2006-2009) or by practicing vascular surgeons applying for the recertifying exam (RE) (2003-2009). Regional variations in operative data for applicants to the RE were also examined. An analysis of case volume and performance on the written exam was performed.

Results: The reported operative experience of QE applicants exceeds or equals the operative experience of RE

applicants and reflects recent trends favoring endovascular treatment. For trainees, EVAR appears to have reached a plateau but open aortic case volume continues to decline. Case volume has a significant positive association with QE performance but not RE performance. There was substantial regional variation in the operative logs of RE applicants. The endovascular experience of RE applicants has risen significantly over the past 7 years.

Conclusions: 1) The operative experience of recent vascular surgery trainees is appropriate for career expectations as reflected by scope and complexity of contemporary vascular surgery practice. 2) Endovascular procedures have been rapidly incorporated into clinical practice by the majority of vascular surgeons applying for recertification despite substantial regional heterogeneity.

	QE%>0	*RE%>0*	*p*	*QE MEAN*	*RE MEAN*
AAA-Rupt	88	58	0.0001	3	2
AAA-Elec	100	98	NS	14	4
Thoracic Open	30	11	0.0001	0	1
Thoracoabd	81	17	0.0001	2	2
CEA	100	98	NS	47	22
AFBG	77	78	NS	2	3
FP Vein	98	82	0.0001	9	4
1st Rib	73	16	0.0001	2	2
EVAR	100	78	0.0001	44	12
IVCF	93	72	0.0001	16	11

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VS 7.

Video Presentation
Technique for Supraceliac Balloon Aortic Control During EVAR for Ruptured Abdominal Aortic Aneurysms

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Background: EVAR is used increasingly to treat ruptured abdominal aortic aneurysms (RAAAs) with mixed results. Approximately 20% of RAAA patients suffer complete circulatory collapse (arterial blood pressure < 40 mm Hg) before or during the procedure. Their survival depends on obtaining and maintaining continuously first supraceliac and then infrarenal aortic balloon control until the endograft is fully deployed and the aneurysm excluded. We have developed a technique for doing this and used it successfully in 17 cases in which EVAR was performed for a RAAA in patients with complete circulatory collapse. In this video the complex sequence of steps needed to obtain and maintain continuous aortic balloon control is demonstrated in a glass model.

Technical Description: A long large sheath is inserted through the left femoral artery to place and support the large compliant first aortic occlusion balloon. With this inflated balloon in place, the body and right limb of a modular endograft is fully deployed through the right femoral artery. A second balloon is placed via the right femoral artery within the graft body to maintain aortic control while the first balloon is removed through its sheath. The remaining components of the endograft are deployed to fully exclude the aneurysm. If iliac aneurysms are present, complete aneurysm exclusion with continuous aortic control may require placement and inflation of a third balloon inserted via the left femoral artery into the body of the graft as the second balloon is removed. This technique of balloon aortic control improves the outcome of EVAR for RAAAs.

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SS37.

Standardization Is Superior to Traditional Methods of Teaching Simulated Vascular Anastomoses

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Objectives: Standardizing surgical skills teaching has been proposed as a method to rapidly attain technical competence. This study compared acquisition of vascular skills by standardized vs traditional teaching methods.

Methods: Eighteen first-year surgical residents were randomized to a standardized or traditional group. Participants were taught technical aspects of vascular anastomosis using femoral anastomosis simulation (Limbs&Things©), supplemented with factual information. One expert instructor taught a standardized anastomosis technique to one group over four sessions, while, similar to current vascular training, four different expert instructors each taught one session to the other (traditional) group. Knowledge and technical skill were assessed at study completion using objective performance metrics (OSATS) by an independent vascular expert. Participants also provided written evaluation of the study experience.

Results: The standardized group had significantly higher overall technical (mean 95.7% vs 75.8%; $p = 0.038$) and global skill scores (mean 83.4% vs 67%; $p = 0.006$).